

CLAIMS

1. An apparatus for dissolving or suspending a substance in a solvent comprising:
 - 5 an outer chamber for containing a dense gas;
an inlet for supplying dense gas as a solvent;
a porous chamber within the outer chamber for containing a substance for dissolution or suspension with the solvent, the porous chamber having a wall which allows passage of solvent and the substance dissolved or suspended in the
10 solvent, and
an outlet for removing solvent and solution and/or dispersion from the outer chamber and a turbulence means for creating turbulence within the porous chamber.
2. The apparatus of claim 1, wherein the inlet in the outer chamber supplies
15 solvent directly to a mouth communicating with the porous chamber.
3. The apparatus of claim 1, wherein the inlet is in the wall of the outer chamber providing dense gas to the region between the porous chamber and the outer chamber.
4. The apparatus of claim 1, wherein the inlet supplies solvent to the porous
20 chamber and the region between the porous chamber and the outer chamber.
5. The apparatus of claim 2, wherein the porous chamber is further provided with a longitudinally extending shaft communicating with the solvent inlet of the porous chamber.
6. The apparatus of claim 5, wherein the shaft is porous or perforated.
- 25 7. The apparatus of claim 5, wherein the substance is in the porous chamber in the region around the longitudinally extending shaft and the solvent enters the porous chamber through the shaft.

8. The apparatus of claim 1, wherein the turbulence creating means includes a drive means to drive a magnetic stirrer within the porous chamber.
9. The apparatus of claim 1, wherein the turbulence creating means includes a drive means to rotate the porous chamber within the outer chamber.
- 5 10. The apparatus of claim 1, wherein the turbulence creating means further comprises baffles within the outer chamber in the region between the porous chamber and the wall of the outer chamber.
11. The apparatus of claim 1, wherein the porous chamber is provided with a plug to hold the substance against the base of the inner chamber.
- 10 12. The apparatus of claim 11, wherein the plug is a planar element abutting the sides of the inner chamber and is held against the substance by a resilient biasing means.
13. A method of dissolving or suspending a substance in a dense gas comprising the steps of:
- 15 adding the substance to a porous chamber located within an outer chamber;
- supplying the outer chamber with a dense gas as a solvent;
- contacting the substance with the solvent within the porous chamber to form a solution or suspension within the porous chamber;
- 20 passing the solution or suspension through the walls of the porous chamber and removing the solution or suspension from the outer chamber.
14. The method of claim 13, wherein the dense gas is supplied to a region within the outer chamber and around the porous chamber.
15. The method of claim 13, wherein the turbulence is created within the porous
25 chamber to dissolve the substance in the solvent and pass the solution through the pores of the porous chamber into the region around the porous chamber.
16. The method of claim 13, wherein the dense gas is supplied directly to an

inlet in the porous chamber to contact the substance within the porous chamber.

17. The method of claim 13, further comprising the step of rotating the porous chamber to dissolve the substance in the solvent and passing the solution through the porous walls to the outlet of the outer chamber.

5 18. The method of claim 16, wherein the porous chamber is further provided with a longitudinally extending shaft communicating with the inlet of the porous chamber.

19. The method of claim 18, wherein the shaft is porous or perforated.

10 20. The method of claim 18, wherein the substance is in the annular region around the longitudinally extending shaft and the solvent enters the porous chamber through the shaft.

21. A method for producing fine particles using the apparatus according to claim 1.

15 22. A method of producing fine particles comprising the steps of dissolving or suspending a substance in a dense gas according to the method of claim 13, further including the step of depressurizing the substance solvent solution to precipitate fine particles of the substance.

23. The method of claim 22, wherein the substance is a biologically active substance used for diagnostic or therapeutic purposes.

20 24. A pharmaceutical composition comprising fine particles of an active substance produced by the method of claim 13.

25. A method of treatment of the subject comprising the steps of administering to the subject an affective amount of particles of a biologically active substance produced by the method of claim 13.

25 26. A method of treatment of the subject comprising the steps of administering to the subject an affective amount of particles of a biologically active substance produced using the apparatus of claim 1.